

How much does hybrid energy cost for Belarusian communication base stations





Overview

What is unique about this research based on hybrid energy storage?

The interesting or unique about this research compared to other research-based on hybrid energy storage is to apply hybrid energy storage in the poor grid and bad grid scenarios which are not discussed in another research before.

What is a hybrid energy storage system?

Hybrid energy storage systems using battery energy storage has evolved tremendously for the past two decades especially in the area of car manufacturing either in a fully hybrid electric car or hybrid car that use battery energy storage with internal petrol combustion engine .

Which hybrid system has the lowest CAPEX cost?

We can observe that the 4/96 hybrid configuration has the lowest CAPEX cost among other hybrid configurations and also other battery types namely the VRLA 12V and 0/100 12V with replacement cost being considered OPEX. The system with the lithium-ion battery has the highest cost and using VRLA is cheaper.

How much power does a base station use?

Suppose the load power consumption of a base station is 2000 W by using the lithium-ion battery and the corresponding load current is approximately 41.67A (for simplification, here the 2000W power consumption includes the power consumption of the temperature control equipment divided by 48V per battery module).

How many power conversion modules should a base station have?

The sum of the load current of the base station is at 6667 W and the rectifier efficiency is at 96% where the capacity required is 6944 W. The capacity of a single AC/DC power conversion module is 3000 W, and thus two power



conversion modules should be configured.



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Energy storage systems allow base stations to store energy during periods of low demand and release it during high-demand periods. This helps reduce power consumption and optimize costs.

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Energy efficient architectures: Energy efficiency in wireless networks can also be achieved through different network architectures, such as cost effective deployment strategies ...

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